

CLAIM AMENDMENTS

Claims 1-42 (canceled)

Claim 43 (new): A biaxially oriented polyester film produced from a polyester comprising:

- (1) diacid residues comprising at least 90 mole percent of terephthalic acid residues, naphthalenedicarboxylic acid residues or combinations thereof; and
- (2) diol residues comprising at least 90 mole percent of 1,4-cyclohexanedimethanol residues,

wherein the polyester film is stretched at a ratio of about 2.5X to 3X in the machine direction (MD) and about 2.5X to 3X in the transverse direction (TD) at stretching temperatures between 90 and 110°C, and

wherein the stretched film is subsequently heat-set at an actual film temperature of from 260°C to Tm, wherein Tm is the melting point of the polyester as measured by differential scanning calorimetry (DSC), while maintaining the dimensions of the stretched film.

Claim 44 (new): The biaxially oriented polyester film of Claim 43 wherein the 1,4-cyclohexanedimethanol residues have a trans isomer content in the range of about 60 to about 100%.

Claim 45 (new): The biaxially oriented polyester film of Claim 43 wherein the 1,4-cyclohexanedimethanol residues have a trans isomer content in the range of about 60 to about 80%.

Claim 46 (new): The biaxially oriented polyester film of Claim 43 wherein the diacid residues comprise at least 90 mole percent of terephthalic acid residues.

Claim 47 (new): The biaxially oriented polyester film of Claim 43 wherein the polyester has a melting point of at least 270°C and an inherent viscosity of 0.4 to 1.2 as measured at 25°C using 0.50 gram of polymer per 100 mL of a solvent composed of 60

weight percent phenol and 40 weight percent tetrachloroethane according to ASTM method D2857-95, and comprises:

- (1) diacid residues comprising at least 97 mole percent of terephthalic acid residues, naphthalenedicarboxylic acid residues or combinations thereof; and
- (2) diol residues comprising at least 97 mole percent of 1,4-cyclohexanedimethanol residues.

Claim 48 (new): The biaxially oriented polyester film of Claim 47 wherein the polyester has an inherent viscosity of 0.5 to 1.1.

Claim 49 (new): The biaxially oriented polyester film of Claim 47 wherein the polyester has a melting point of 270 to 330°C and an inherent viscosity of 0.5 to 1.1.

Claim 50 (new): The biaxially oriented polyester film of Claim 47 wherein the 1,4-cyclohexanedimethanol residues have a trans isomer content in the range of about 60 to about 100%.

Claim 51 (new): The biaxially oriented polyester film of Claim 47 wherein the 1,4-cyclohexanedimethanol residues have a trans isomer content in the range of about 60 to about 80%.

Claim 52 (new): The biaxially oriented polyester film of Claim 47 wherein the diacid residues comprise at least 97 mole percent of terephthalic acid residues.

Claim 53 (new): The biaxially oriented polyester film of Claim 43 wherein the stretched film is heat-set at an actual film temperature of from 260°C to Tm for a period of time of 1 to 120 seconds while maintaining the dimensions of the stretched film.

Claim 54 (new): The biaxially oriented polyester film of Claim 43 wherein the polyester film is sequentially stretched in the machine and the transverse directions, and the stretched film is heat-set at an actual film temperature of from 260°C to Tm for a

period of time of 1 to 120 seconds while maintaining the dimensions of the stretched film.

Claim 55 (new): The biaxially oriented polyester film of Claim 43 wherein the polyester film is simultaneously stretched in the machine and the transverse directions, and the stretched film is heat-set at an actual film temperature of from 260°C to Tm for a period of time of 1 to 120 seconds while maintaining the dimensions of the stretched film.

Claim 56 (new): A biaxially oriented polyester film produced from a polyester comprising:

- (1) diacid residues comprising at least 90 mole percent of terephthalic acid residues, naphthalenedicarboxylic acid residues or combinations thereof; and
- (2) diol residues comprising at least 90 mole percent of 1,4-cyclohexanedimethanol residues,

wherein the polyester film is stretched at a ratio of about 2.5X to 3X in the machine direction (MD) and about 2.5X to 3X in the transverse direction (TD) at stretching temperatures between 90 and 110°C,

wherein the stretched film is subsequently heat-set at an actual film temperature of from 260°C to Tm, wherein Tm is the melting point of the polyester as measured by differential scanning calorimetry (DSC), while maintaining the dimensions of the stretched film, and

wherein the biaxially oriented and heat-set polyester film undergoes not more than 3% shrinkage when immersed for 10 seconds in a solder bath preheated to 260°C and exhibits a coefficient of thermal expansion value of 10-85 ppm/°C when measured between 120 and 150°C, and a coefficient of thermal expansion value of 10-42 ppm/°C when measured between 25 and 90°C.

Claim 57 (new): The biaxially oriented polyester film of Claim 56 wherein the polyester has a melting point of at least 270°C and an inherent viscosity of 0.4 to 1.2 as measured at 25°C using 0.50 gram of polymer per 100 mL of a solvent composed of 60

weight percent phenol and 40 weight percent tetrachloroethane according to ASTM method D2857-95, and comprises:

- (1) diacid residues comprising at least 97 mole percent of terephthalic acid residues, naphthalenedicarboxylic acid residues or combinations thereof; and
- (2) diol residues comprising at least 97 mole percent of 1,4-cyclohexanedimethanol residues.

Claim 58 (new): The biaxially oriented polyester film of Claim 56 wherein the polyester film is sequentially stretched in the machine and the transverse directions, and the stretched film is heat-set at an actual film temperature of from 260°C to Tm for a period of time of 1 to 120 seconds while maintaining the dimensions of the stretched film.

Claim 59 (new): The biaxially oriented polyester film of Claim 56 wherein the polyester film is simultaneously stretched in the machine and the transverse directions, and the stretched film is heat-set at an actual film temperature of from 260°C to Tm for a period of time of 1 to 120 seconds while maintaining the dimensions of the stretched film.

Claim 60 (new): A thermoplastic article comprising one or more laminates, wherein at least one of said laminates comprises in order:

- I. a thermally curable adhesive; and
- II. a biaxially oriented and heat-set polyester film produced from a polyester comprising:
 - (1) diacid residues comprising at least 90 mole percent of terephthalic acid residues, naphthalenedicarboxylic acid residues or combinations thereof; and
 - (2) diol residues comprising at least 90 mole percent of 1,4-cyclohexanedimethanol residues,

wherein said polyester film is stretched at a ratio of about 2.5X to 3X in the machine direction (MD) and about 2.5X to 3X in the transverse direction (TD) at stretching temperatures between 90 and 110°C, and

wherein the stretched film is subsequently heat-set at an actual film temperature of from 260°C to T_m, wherein T_m is the melting point of the polymer as measured by differential scanning calorimetry (DSC), while maintaining the dimensions of the stretched film.

Claim 61 (new): The thermoplastic article of Claim 60 wherein said at least one laminate comprises in order:

- I. a copper layer;
- II. said thermally curable adhesive; and
- III. said biaxially oriented and heat-set polyester film.

Claim 62 (new): The thermoplastic article of Claim 61 wherein the copper layer has a thickness of 17 to 140 microns; and the polyester has a melting point of at least 270°C and an inherent viscosity of 0.4 to 1.2 as measured at 25°C using 0.50 gram of polymer per 100 mL of a solvent composed of 60 weight percent phenol and 40 weight percent tetrachloroethane according to ASTM method D2857-95, and comprises:

- (1) diacid residues comprising at least 97 mole percent of terephthalic acid residues, naphthalenedicarboxylic acid residues or combinations thereof; and
- (2) diol residues comprising at least 97 mole percent of 1,4-cyclohexanedimethanol residues.

Claim 63 (new): A thermoplastic article comprising one or more laminates, wherein at least one of said laminates comprises in order:

- I. a thermally curable adhesive; and
- II. a biaxially oriented and heat-set polyester film produced from a polyester comprising:
 - (1) diacid residues comprising at least 90 mole percent of terephthalic acid residues, naphthalenedicarboxylic acid residues or combinations thereof; and
 - (2) diol residues comprising at least 90 mole percent of 1,4-cyclohexanedimethanol residues,

wherein said polyester film is stretched at a ratio of about 2.5X to 3X in the machine direction (MD) and about 2.5X to 3X in the transverse direction (TD) at stretching temperatures between 90 and 110°C,

wherein the stretched film is subsequently heat-set at an actual film temperature of from 260°C to T_m, wherein T_m is the melting point of the polymer as measured by differential scanning calorimetry (DSC), while maintaining the dimensions of the stretched film, and

wherein the biaxially oriented and heat-set polyester film undergoes not more than 3% shrinkage when immersed for 10 seconds in a solder bath preheated to 260°C and exhibits a coefficient of thermal expansion value of 10-85 ppm/°C when measured between 120 and 150°C, and a coefficient of thermal expansion value of 10-42 ppm/°C when measured between 25 and 90°C.

Claim 64 (new): The thermoplastic article of Claim 63 wherein said at least one laminate comprises in order:

- I. a copper layer;
- II. said thermally curable adhesive; and
- III. said biaxially oriented and heat-set polyester film.

Claim 65 (new): The thermoplastic article of Claim 64 wherein the copper layer has a thickness of 17 to 140 microns; and the polyester has a melting point of at least 270°C and an inherent viscosity of 0.4 to 1.2 as measured at 25°C using 0.50 gram of polymer per 100 mL of a solvent composed of 60 weight percent phenol and 40 weight percent tetrachloroethane according to ASTM method D2857-95, and comprises:

- (1) diacid residues comprising at least 97 mole percent of terephthalic acid residues, naphthalenedicarboxylic acid residues or combinations thereof; and
- (2) diol residues comprising at least 97 mole percent of 1,4-cyclohexanedimethanol residues.

Claim 66 (new): A process for the preparation of a thermoplastic article comprising one or more laminates, wherein at least one of said laminates comprises in order:

(a) a copper layer;
(b) a thermally curable adhesive; and
(c) a biaxially oriented and heat-set polyester film produced from a polyester comprising:

- (1) diacid residues comprising at least 90 mole percent of terephthalic acid residues, naphthalenedicarboxylic acid residues or combinations thereof; and
- (2) diol residues comprising at least 90 mole percent of 1,4-cyclohexanedimethanol residues,

wherein said polyester film is stretched at a ratio of about 2.5X to 3X in the machine direction (MD) and about 2.5X to 3X in the transverse direction (TD) at stretching temperatures between 90 and 110°C, and

wherein the stretched film is subsequently heat-set at an actual film temperature of from 260°C to Tm, wherein Tm is the melting point of said polyester as measured by differential scanning calorimetry (DSC), while maintaining the dimensions of the stretched film,

said process comprising the step of heating said laminate at a temperature of about 120 to 180°C under pressure for a period of time sufficient to cure the thermally curable adhesive.

Claim 67 (new): A flexible electronic circuit board comprising at least one biaxially oriented polyester film produced from a polyester comprising:

- (1) diacid residues comprising at least 90 mole percent of terephthalic acid residues, naphthalenedicarboxylic acid residues or combinations thereof; and
- (2) diol residues comprising at least 90 mole percent of 1,4-cyclohexanedimethanol residues,

wherein the polyester film is stretched at a ratio of about 2.5X to 3X in the machine direction (MD) and about 2.5X to 3X in the transverse direction (TD) at stretching temperatures between 90 and 110°C, and

wherein the stretched film is heat-set at an actual film temperature of from 260°C to Tm, wherein Tm is the melting point of the polyester as measured by differential scanning calorimetry (DSC), while maintaining the dimensions of the stretched film.

Claim 68 (new): The flexible electronic circuit board of Claim 67 wherein said polyester has a melting point of at least 270°C and an inherent viscosity of 0.4 to 1.2 as measured at 25°C using 0.50 gram of polymer per 100 mL of a solvent composed of 60 weight percent phenol and 40 weight percent tetrachloroethane according to ASTM method D2857-95, and comprises:

- (1) diacid residues comprising at least 97 mole percent of terephthalic acid residues, naphthalenedicarboxylic acid residues or combinations thereof; and
- (2) diol residues comprising at least 97 mole percent of 1,4-cyclohexanedimethanol residues.

Claim 69 (new): The flexible electronic circuit board of Claim 67 comprising one or more laminates, wherein at least one of said laminates comprises in order:

- I. a copper layer;
- II. a thermally curable adhesive; and
- III. said biaxially oriented and heat-set polyester film.

Claim 70 (new): A flexible electronic circuit board comprising at least one biaxially oriented polyester film produced from a polyester comprising:

- (1) diacid residues comprising at least 90 mole percent of terephthalic acid residues, naphthalenedicarboxylic acid residues or combinations thereof; and
- (2) diol residues comprising at least 90 mole percent of 1,4-cyclohexanedimethanol residues,

wherein the polyester film is stretched at a ratio of about 2.5X to 3X in the machine direction (MD) and about 2.5X to 3X in the transverse direction (TD) at stretching temperatures between 90 and 110°C,

wherein the stretched film is heat-set at an actual film temperature of from 260°C to T_m, wherein T_m is the melting point of the polyester as measured by differential scanning calorimetry (DSC), while maintaining the dimensions of the stretched film, and

wherein the biaxially oriented and heat-set polyester film undergoes not more than 3% shrinkage when immersed for 10 seconds in a solder bath preheated to 260°C and

exhibits a coefficient of thermal expansion value of 10-85 ppm/°C when measured between 120 and 150°C, and a coefficient of thermal expansion value of 10-42 ppm/°C when measured between 25 and 90°C.

Claim 71 (new): The flexible electronic circuit board of Claim 70 wherein said polyester has a melting point of at least 270°C and an inherent viscosity of 0.4 to 1.2 as measured at 25°C using 0.50 gram of polymer per 100 mL of a solvent composed of 60 weight percent phenol and 40 weight percent tetrachloroethane according to ASTM method D2857-95, and comprises:

- (1) diacid residues comprising at least 97 mole percent of terephthalic acid residues, naphthalenedicarboxylic acid residues or combinations thereof; and
- (2) diol residues comprising at least 97 mole percent of 1,4-cyclohexanediethanol residues.

Claim 72 (new): The flexible electronic circuit board of Claim 70 comprising one or more laminates, wherein at least one of said laminates comprises in order:

- I. a copper layer;
- II. a thermally curable adhesive; and
- III. said biaxially oriented and heat-set polyester film.